Department of Defense—U.S. Navy
Space and Naval Warfare Systems Center, San Diego (SPAWAR)

Automated Oil Spill Detection System

Rapid, reliable spill detection is an essential yet often overlooked part of oil spill prevention and response strategies. Early detection of a petroleum leak or spill enables responders to take immediate actions to stop and contain the released material. By enhancing the ability to exercise timely countermeasures, early detection offers an effective means of minimizing the environmental and financial impact of a spill. On the other hand, a failure or delay in recognizing the existence of a spill leads to a delayed response, which may result in a larger spill volume and costlier cleanup effort. Current oil spill detection methods rely solely on human observation to identify the presence of a spill—a very unreliable practice. To address this issue, the SPAWAR team developed an automated spill-sensing technology.

The automated technology provides early notification of a petroleum spill on water. The fluorescence-based sensor operates just below the water surface and continuously tests for an increased hydrocarbon concentration, which is indicative of a spill. When a spill is detected, a radio signal is immediately transmitted to a base station computer for analysis, display, and electronic alarming. Once a spill has been detected, responders immediately receive an automated phone call alerting them.
To transfer the technology, the SPAWAR team entered into a licensing agreement with Applied Microsystems Ltd. (AML), a Canadian company that designs and manufactures water quality monitoring instrumentation. Currently, AML is marketing the detection system globally under the name "Spill Sentry."

This technology will provide numerous benefits since it has the potential to significantly reduce the amount of oil that enters the environment every day due to pipeline leaks, tank overflows, and illegal dumping. In addition, it will serve to minimize the resulting adverse economic and environmental impacts caused by unpreventable spills. The public will benefit from a cleaner aquatic environment made possible by SPAWAR.

From left: John Andrews, Greg Anderson, and Michael Kagan